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EXAMINER

LYONS, MICHAEL A

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 07/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/928,177

Applicant(s)

LEE ET AL.

Examiner

Michael A. Lyons

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 May 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \*   c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

Claim 1 is objected to because of the following informalities: in line 16, the description of CCD should be "charged coupled device", not "charges coupled device" as currently presented. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou (6,356,036) in view of Piwonka-Corle et al (5,608,526), Badami et al (6,181,420), and Perov et al (6,407,395).**

Regarding claim 1, Zhou discloses (Fig. 4) a monochrome light source 30, a polarizer 31, a non-polarizing beam splitter 32, a polarization retarder (acting similar to the analysis plate claimed) 34, and a pair of detectors 39 and 40. Zhou, however, fails to disclose a parabolic mirror, a spherical focusing mirror, a movable stage, a quarter wave plate, a polarizer, a third photodetector, and a microscope lens set with an additional CCD.

Piwonka-Corle (Fig. 1) discloses a parabolic mirror 17, a spherical focusing mirror 4, and a stage 63 that can be limited to be uniaxial to act as a variable incident angle optical set. Badami (Fig. 1) discloses a quarter wave plate 160 for a phase modulation unit, and a polarizer 148 and detector 150 to aid in performing optical signal analysis. Finally, Perov (Fig. 1) discloses lenses 114 (objective) and 120 along with a PMT 124 for light detection (it would be obvious to substitute a CCD for detection) in a portable biochip scanner device as a microscopic lens set.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine elements from the four patents disclosed above to establish the elements required for the invention as claimed, since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987). The combined devices are not explicitly called "a

variable incident angle optical set", and so on, as in the claims, but they meet the structural limitations of the claimed device while having relatively similar functionality.

As for claim 2, Zhou's device discloses a monochrome light source 30 with a linear polarizer 31.

As for claim 3, the use of a compensator, a liquid crystal phase modulator, or a photoelastic phase modulator for a phase modulation unit is well known in the art.

As for claim 4, the use of a reflective mirror, or either a triangular or penta prism, for a refractive prism is well known in the art.

As for claims 5 and 6, the use of either a photodiode or a CCD for a photodetector is well known.

**Claims 7-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou (6,356,036) in view of Piwonka-Corle et al (5,608,526), Badami et al (6,181,420), and Perov et al (6,407,395).**

Regarding claim 7, the discussion regarding claim 1 discloses all the elements except for a refraction member and a pinhole device. Piwonka-Corle (Fig. 1) discloses a prism 172, and Perov (Fig. 1) discloses a pinhole device 122, both being elements which are well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine elements from the four patents disclosed above to establish the elements required for the invention as claimed, since a prism and pinhole device are well known in the art, and since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art

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apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

As for claim 8, Zhou's device discloses a monochrome light source 30 with a linear polarizer 31.

As for claim 9, Badami discloses a quarter waveplate.

As for claim 10, Piwonka-Corle discloses a triangular prism 172.

As for claim 11, the use of a step-motor or a DC motor is well known in the art.

As for claim 12, the use of a planar reflective mirror is well known.

As for claim 13, Piwonka-Corle discloses a paraboloidal mirror and a spherical mirror as disclosed above.

As for claim 14, the use of a photodiode and a CCD coupled to an analyzer is well known in the art.

As for claim 15, Zhou discloses an analyzer 34 and detectors 39 and 40.

**Claims 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou (6,356,036) in view of Piwonka-Corle et al (5,608,526), Badami et al (6,181,420), and Perov et al (6,407,395).**

Regarding claim 16, the discussion regarding claim 7 discloses all the elements claimed in claim 16. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine elements from the four patents disclosed above to establish the elements required for the invention as claimed, since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not

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differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

As for claim 17, Zhou's device discloses a monochrome light source 30 with a linear polarizer 31.

As for claim 18, Piwonka-Corle discloses a triangular prism 172.

As for claim 19, the use of a step-motor or a DC motor for driving a stage is well known in the art.

As for claim 20, Piwonka-Corle discloses a paraboloidal mirror 17.

As for claim 21, Perov discloses lenses 114 and 120 and a detection device 124 that can be substituted with a CCD, as the CCD is an art equivalent.

**Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou (6,356,036) in view of Piwonka-Corle et al (5,608,526), Badami et al (6,181,420), and Perov et al (6,407,395).**

Regarding claim 22, the discussion regarding claim 7 discloses all the elements claimed in claim 22. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine elements from the four patents disclosed above to establish the elements required for the invention as claimed, since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

**Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou (6,356,036) in view of Piwonka-Corle et al (5,608,526), Badami et al (6,181,420), and Perov et al (6,407,395).**

Regarding claim 23, the discussion regarding claim 7 discloses all the elements claimed in claim 23, except a beam expander. The use of a beam expander to expand a beam of light is well known in the art, however. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine elements from the four patents disclosed above to establish the elements required for the invention as claimed, since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

**Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou (6,356,036) in view of Piwonka-Corle et al (5,608,526), Badami et al (6,181,420), and Perov et al (6,407,395) and in further view of Daval et al (3,758,194).**

As for claim 24, Daval (Fig. 1) discloses a reference interference light path control unit. While the device does not perform the function as claimed, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine elements from the five patents disclosed above to establish the elements required for the invention as claimed, since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).



**Claims 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou (6,356,036) in view of Piwonka-Corle et al (5,608,526), Badami et al (6,181,420), Perov et al (6,407,395), and Daval et al (3,758,194).**

Regarding claim 25, the discussion regarding claim 7 discloses all the elements in the claimed device except an interference referencing light path. Daval (Fig. 1) discloses an interference referencing light path control unit.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine elements from the five patents disclosed above to establish the elements required for the invention as claimed, since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

Further, it has been held that the recitation that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchinson*, 69 USPQ 138.

As for claim 26, Zhou discloses a non-polarizing beam splitter 32 and a detector 39.

As for claim 27, Zhou discloses a polarizing beam splitter 38 and a detector 40.

As for claim 28, Daval discloses a cavity 10, a reflective mirror 12, and a voltage driver V.

As for claim 29, Piwonka-Corle discloses a prism 172, a paraboloidal mirror 17, a spherical mirror 4, and a stage 63.

As for claim 30, the substitution of a paraboloidal mirror and a spherical mirror for a parabolic rod mirror and a cylindrical mirror, respectively, is well known in the art.

**Claims 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou (6,356,036) in view of Piwonka-Corle et al (5,608,526), Badami et al (6,181,420), Perov et al (6,407,395), and Daval et al (3,758,194).**

Regarding claim 31, the discussion regarding claim 25 discloses all the elements in the claimed device it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine elements from the five patents disclosed above to establish the elements required for the invention as claimed, since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987)..

Further, it has been held that the recitation that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchinson*, 69 USPQ 138.

As for claims 32 and 33, Zhou discloses a non-polarizing beam splitter 32 and a detector 39.

As for claim 34, Daval discloses a cavity 10, a reflective mirror 12, and a voltage driver V.

As for claim 35, Piwonka-Corle discloses a prism 172, a paraboloidal mirror 17, a spherical mirror 4, and a stage 63.

As for claim 36, the substitution of a paraboloidal mirror and a spherical mirror for a parabolic rod mirror and a cylindrical mirror, respectively, is well known in the art.

**Claims 37-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou (6,356,036) in view of Piwonka-Corle et al (5,608,526), Badami et al (6,181,420), Perov et al (6,407,395), and Daval et al (3,758,194).**

Regarding claim 37, the discussion regarding claim 25 discloses all the elements in the claimed device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine elements from the five patents disclosed above to establish the elements required for the invention as claimed, since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987).

Further, it has been held that the recitation that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchinson*, 69 USPQ 138.

As for claim 38, Zhou's device discloses a monochrome light source 30 with a linear polarizer 31.

As for claim 39, Badami discloses a quarter wave plate 160.

As for claim 40, Piwonka-Corle discloses a triangular prism 172.

As for claim 41, the use of a step-motor or a DC motor to drive a displacement stage is well known in the art.

As for claim 42, the use of a planar reflective mirror for a focusing device is well known.

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As for claim 43, Piwonka-Corle discloses a paraboloidal mirror 17 and spherical mirror 4.

As for claim 44, Badami discloses two photodetectors 172 and 152.

As for claim 45, Badami discloses polarizer 168 as an analyzer and a detector 172 that can be a CCD.

As for claim 46, Zhou discloses an analyzer 34 and detectors 39 and 40.

As for claim 47, Daval discloses a voltage driver V, a reflective mirror 12, and a light path adjusting device 10.

#### ***Response to Arguments***

Applicants' arguments filed May 14, 2003 have been fully considered but they are not persuasive. The applicants' arguments are based around an argument where the combined references as stated above fail to disclose "a variable incident angle optical set, comprising a quasi-paraboloidal reflective mirror, a quasi-spherical reflective mirror, and a uniaxial displacement stage that can be controlled by a feedback manner and carry a prism set, wherein the variable incident angle optical set is used to adjust an incident angle of a light onto the biochip". As stated in the rejections above, Piwonka-Corle (Fig. 1) discloses a parabolic mirror 17, a spherical focusing mirror 4, and a stage 63 that can be limited to be uniaxial. Since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations, *Ex Parte Masham*, 2 USPQ F.2d 1647 (1987), the combination of devices as discussed above does disclose the variable incident angle optical set as claimed.

Furthermore, the "motion platform" as argued by the applicants is represented by the translational stage 63 of Piwonka-Corle as discussed above.

In addition, in response to applicant's argument that the combined references fail to disclose a variable incident angle optical set, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). The structure of the claimed device is the same as the structure of the combined references; therefore, the rejection stands.

Finally, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 703-305-1933. The examiner can normally be reached on Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G Font can be reached on 703-308-4877. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-0725 for regular communications and 703-308-0725 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0935.

MAL  
July 17, 2003



**Samuel A. Turner**  
Primary Examiner